LOS ANGELES TRADE TECHNICAL JUNIOR COLLEGE
Electronics
Mr. Schwam, Instructor

Name _____

Date _____

TEST

1. Match the following units with their definitions:

1. b	Volt	a.	Quantity of electric charge
2. d	Ohm	b.	Magnitude of potential difference
3. h	Amp	c.	Electrical power
4. c	Watt	d.	Resistance to current flow
5. a	Coulomb	e.	Self inductance
6. g	Farad	f.	Period of repetition
7. e	Henry	g.	Capacitance
8. f	Cycle	h.	Electron flow

2. Arrange the following materials in the order of their conductivity:

1. d	(most conductive)	a.	Dry wood
2. c		b.	Copper
3. e		c.	Carbon
4. b		d.	Silver
5. a		e.	Iron

3. Changing the dielectric constant of a capacitor dielectric material:

_____ a) causes capacity to change inversely

_____ b) causes capacity to change directly

_____ c) has no effect on the capacity

_____ d) has no effect on the voltage rating.

4. A capacitor with a capacitance of 10 MFD has 100 volts across it. The Q will be:

_____ a) .001

_____ b) 1000

_____ c) 10

_____ d) .1

5. What material should be used for shielding a R.F. electro magnetic field:

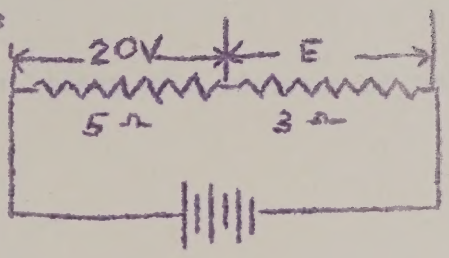
_____a) soft iron

_____b) steel

_____c) aluminum

_____d) lead

6. E in the circuit shown will be:



_____a) .75 V.

_____b) 12 V.

_____c) 300 V.

_____d) 1.33 V.

7. Match the following prefixes with their definitions:

_____Millionth 10^{-6}	a. Kilo 10^{3}
_____Thousandth 10^{-3}	b. Micro 10^{-6}
_____Thousand 10^{3}	c. Milli 10^{-3}
_____Million 10^{6}	d. Mega 10^{6}

8. A relay is designed to operate properly from a 6 volt d.c. source. The resistance of the winding is 120 ohms. What value of resistance should be connected in series with the winding if the relay is to be used with 120 volts D.C.?

_____a) 2,280

_____b) 2,400

_____c) 2.28

_____d) 240

9. If a 5Ω, a 10Ω, and a 15Ωresistor are connected in parallel what is the total resistance?

_____a) 30 Ω

_____b) 1.04 Ω

_____c) 2.73 Ω

_____d) 10.4 Ω

10. What would be the minimum power rating of a resistor of 20000 conntecte across a potential of 500 V.?

_____a) 40W

_____b) 10W

_____c) 6.2W

_____d) 12.5W

11. A capacitor of 16 MFDs is connected in series with a capacitor of 8 MFDs. The total capacitance is:

_____a) 24 MFDs

_____b) 5.34 MFDs

_____c) 12 MFDs

_____d) 18.8 MFDs

12. A 10 hy. choke is connected across 110V 60 cycles. Its reactance is:

_____a) 1100

_____b) 600

_____c) 292

_____d) 3770

13. A radio frequency of 100 KC. has what wave length in free space?

_____a) 917.5 meters

_____b) 109 meters

_____c) 333 meters

14. The signal appearing at the plate of a vacuum tube having a pure resistance load will bear what phase relationship to a sine wave signal on the grid:

_____a) 180°

_____b) 90°

_____c) -90°

_____d) 0°

15. A radio wave in space consists of:

_____a) An electrostatic field

_____b) An electrostatic and electromagnetic field

_____c) A motion of electrons thru space

_____d) A motion of molecules thru space

16. Electron flow in a diode is:

_____a) dependent on plate voltage

_____b) from anode to cathode

_____c) not affected by cathode temperature

_____d) usually controlled by the grid bias.

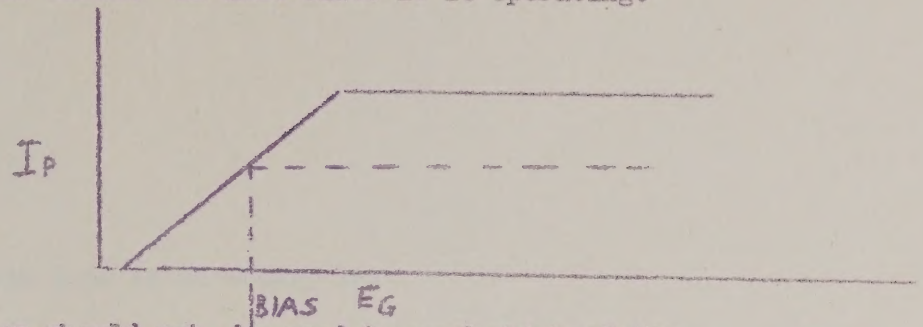
17. An audio amplifier isbiased as shown. In what class is it operating:

_____a) Class A

_____b) Class B

_____c) Class C

_____d) Class AB



18. A 1000 ohm per volt multimeter should <u>not</u> be used to read which of the following:

_____a) battery voltage

_____b) current flow in a relay coil

_____c) grid leak bias voltage of an amplifier

_____d) resistance of wire wound resistors

19. An r.f. ammeter is usually which of the following types:

_____a) hot wire

_____b) thermocouple

_____c) iron vane

_____d) rectifier

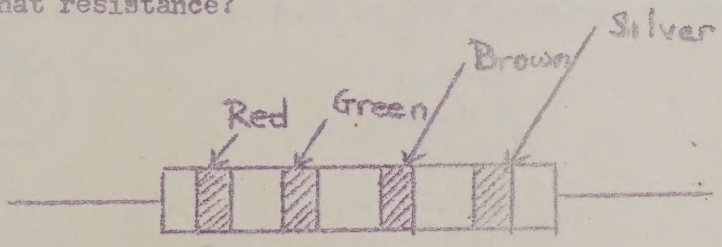
20. The resistor shown has what resistance?

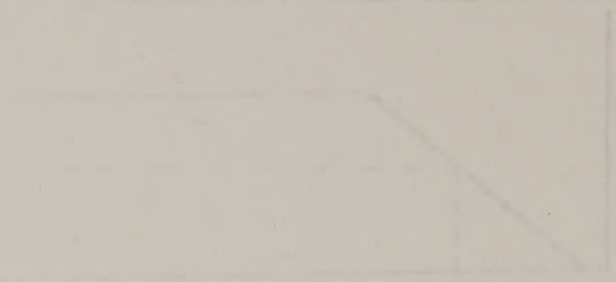
_____a) 250

_____b) 1500

_____c) 25.1

_____d) 1.5





21. The resistance tolerance of the above resistor is:

_____a) 20%

_____b) not shown

_____c) 10%

_____d) 5%

22. A suppressor grid in a pentode tube is necessary to:

_____a) reduce space charge

_____b) increase screen current

_____c) reduce secondary emission

_____d) reduce plate dissipation

23. The amplitude of voltage induced in a wire passing thru a magnetic field is determined by:

_____a) size of wire

_____b) length of wire

_____c) velocity of wire

_____d) length of flux path

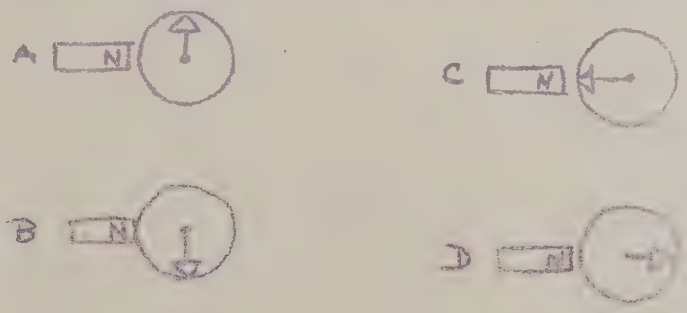
24. The North Pole of a magnet is brought close to the edge of a cathode ray tube screen. The electron beam will move in which of the directions shown?

_____a)

_____b)

_____c)

_____d)



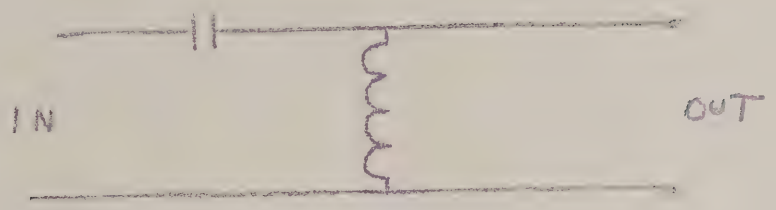
25. The circuit shown could be used as a:

_____a) band pass filter

_____b) wave trap

_____c) power supply filter

_____d) high pass filter



26. Two capacitors, one of 0.001 microfarad and another of [illegible] microfarads, are connected in series across a 200 volt d-c source. The voltage drop across the 0.001 capacitor (in volts) is:

_____a) 100

_____b) 66.7

_____c) 133.3

_____d) 150

_____e) 50

27. In Figure 4 the total circuit current, in amperes, is:

_____a) 21

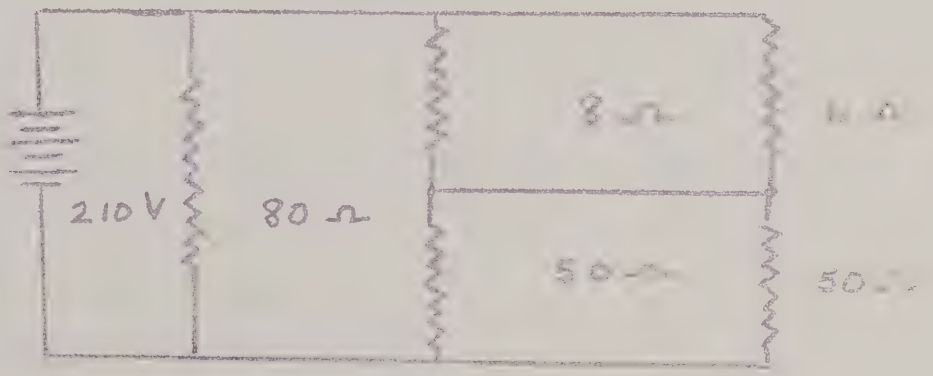
_____b) 10

_____c) 2.08

_____d) 1

_____e) 2.1

FIG. 4



28. The resistance of R 1 (in ohms) in Figure 1 is:

_____a) 333

_____b) 1,630

_____c) 80,000

_____d) 3,000

_____e) 30,000

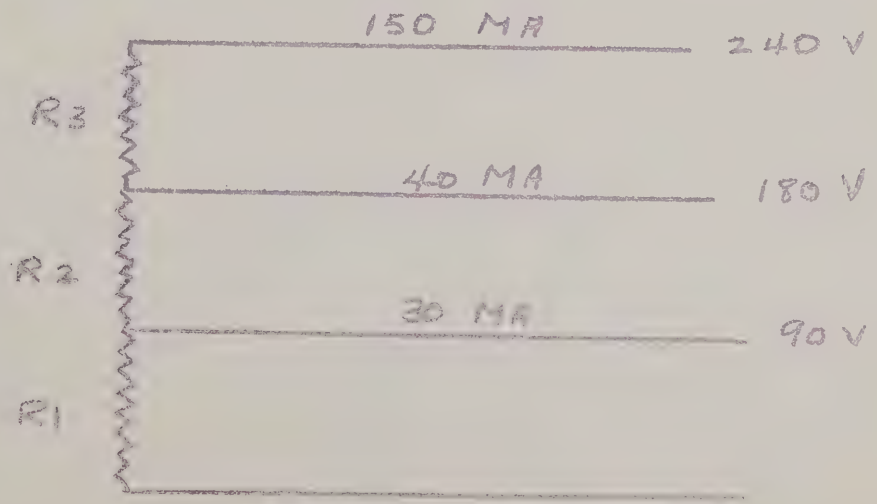


FIG. 1

29. The resistance of R_2 (in ohms) in Figure 1 is:

_____a) 750

_____b) 30,000

_____c) 150

_____d) 60,000

_____e) 1,500

30. In Figure 1, R_3 expends energy at the rate of:

_____a) 1.8 watts

_____b) 60 milliwatts

_____c) 6 watts

_____d) 2.4 watts

_____e) 1.8 milliwatts

31. A wave guide is designed with a cutoff frequency of [illegible] MC. It will:

_____a) conduct 6000 MC satisfactorily

_____b) conduct 1000 MC satisfactorily

_____c) only conduct 3000 MC satisfactorily

_____d) conduct any frequency but 3000 MC satisfactorily

32. The signal of a radio station operating on 3 mcs has a wave-length of:

_____a) 3 mcs

_____b) 1,000 meters

_____c) 1 mcs

_____d) 100 meters

_____e) 1,000 centimeters

33. A cathode follower is usually employed to:

_____a) Provide high gain

_____b) Match to a low impedance circuit

_____c) Reduce input impedance

_____d) Provide a high impedance output

34. Most phototubes may be classified as:

_____a) triodes

_____b) tetrodes

_____c) pentodes

_____d) diodes

35. Varying the grid bias on a remote cut-off stage will:

_____a) change its gain

_____b) alter its class of operation

_____c) change its frequency repsonse

_____d) change the % of distortion in the output

36. A change of $\frac{1}{2}$ volt in the grid bias on a triode amplifier tube has the same effect on plate current as a change of 10 volts on the plate. If the tube has a transconductance of 2,000 micromhos, its plate resistance (in ohms) is:

_____a) 10,000

_____b) 5,000

_____c) 20

_____d) 20,000

_____e) 1,000

37. To provide 10 volts of grid bias in a tetrode amplifier circuit with a plate current of 30 milliamperes and a screen current of 10 milliamperes, the cathode resistance (in ohms) should be:

_____a) 333

_____b) 1,000

_____c) 500

_____d) 250

_____e) 300

38. Use of a screen grid tube as a r-f amplifier eliminates the necessity for neutralization because of its:

_____a) low grid-plate capacity

_____b) high grid-plate capacity

_____c) high grid-cathode capacity

_____d) low grid-cathode capacity

_____e) high amplification factor

39. In order to hold plate current constant over the normal operating range in spite of minor plate supply voltage variations, a circuit should employ a:

_____a) diode

_____b) high-mu triode

_____c) pentode

_____d) variable-mu triode

_____e) low-mu triode

40. In Figure 13 the output current of the bias supply is 75 milliamperes; the grid current is 50 milliamperes. To make the grid bias 200 volts, the value of R (in ohms) should be:

_____a) 4,000

_____b) 1,600

_____c) 2,667

_____d) 400

_____e) 160

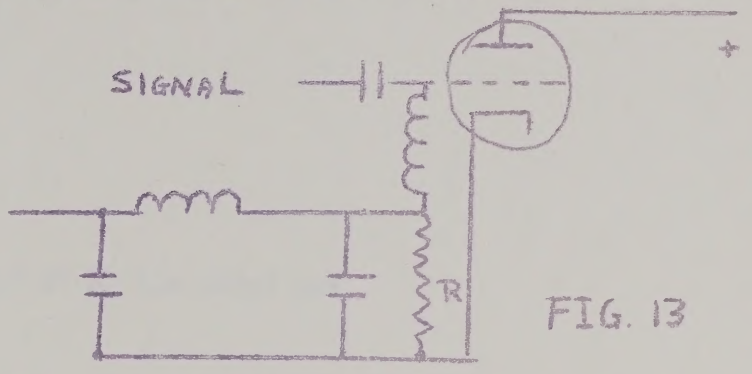


FIG. 13

41. In Figure 14 the resistance of R_k (in ohms) is:

_____a) 4,000

_____b) 1,667

_____c) 2,000

_____d) 8,000

_____e) 800

E_p = 150 volts I_p = 4 milliamperes

EE_{ps} = 300 volts I_{sg} = 2 milliamperes

E_{ss} = 100 volts I_g = 0 milliamperes

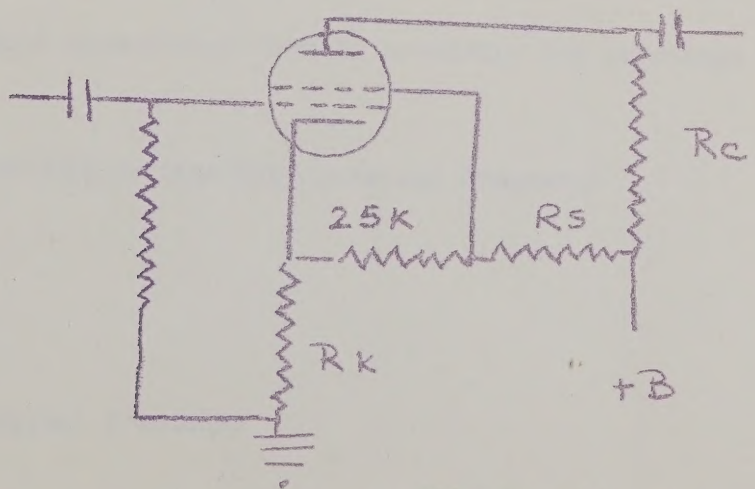
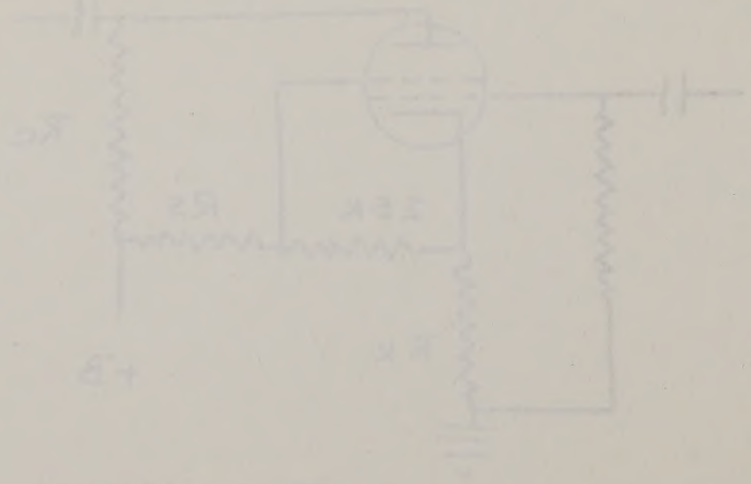


FIG. 14



42. In Figure 14 the resistance of R_s (in ohms) is:

_____a) 48,670

_____b) 100,000

_____c) 32,000

_____d) 33,333

_____e) 96,000

43. In Figure 14 the resistance of R_c (in ohms) is:

_____a) 355,000

_____b) 375,000

_____c) 3,750

_____d) 37,500

_____e) 35,500

44. A vacuum tube operating as an oscillator and a mixer is known as a:

_____a) pentagrid mixer

_____b) converter

_____c) 2nd detector

_____d) heterodyne mixer

_____e) beat-frequency oscillator

45. A series LCR circuit containing more capacitance than is necessary for resonance at the operating frequency is:

_____a) resonant to a frequency higher than the operating frequency

_____b) inductive

_____c) capacitive

_____d) resistive

_____e) operated below its resonant frequency